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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,198	03/13/2001	Rikuro Obara	2523-061	9185

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EXAMINER

BELENA, JOHN F

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 04/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,198

Applicant(s)

OBARA, RIKURO

Examiner

John F Belena

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 5 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____



United States Patent & Trademark Office

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Axial Electric Fan Blower.**

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by (6,270,320 B1) to Heyder et al.

Heyder et al. clearly shows in Figures 1-7 a radial fan blower (11) having an impeller {(13), (14)} adapted to be rotated by means of a motor {(13), (20), (22), (23), (24), (25)} comprising: a base {(15), (18), (21) motor receptacle (not shown)} for supporting the motor {(13), (20), (22), (23), (24), (25)}, the base {(15), (18), (21)} is provided and supported at the central portion (19) of a frame by means of stays (15'); and a chamber {inside of control housing (18)} for accommodating electrical components {Fig. 5} formed in the base {(15), (18), (21)}, the back portion of the chamber is adapted to be sealed by a removable cover (18). See Heyder et al. Figures 1-7 and respective portions, abstract, page 3 rows 50-67, page 4 rows 5-7, 49-67, page 5 rows 1-39, of the detailed description.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over (6,270,320 B1) to Heyder et al. in view of (5,967,671) to Obara, and further in view of (3,826,047) to Binder.

As set forth in the rejection above Heyder et al. discloses the invention substantially as claimed. Heyder et al. discloses a motor shaft (20) but does not disclose a stepped motor shaft. Heyder et al. also does not disclose a bearing apparatus for supporting a central portion of an impeller, the bearing apparatus including: a sleeve, a stepped shaft including a larger diameter portion and a reduced diameter portion, the first raceway formed at an appropriate position around the outer peripheral surface of the larger diameter portion, the second raceway formed on an inner peripheral surface of the sleeve so as to correspond with the first raceway, balls of a first row interposed between the first and second raceways, an inner ring fit over the reduced diameter portion of the shaft and secured thereto, the third raceway formed around an outer peripheral surface of the inner ring, the fourth raceway formed on the inner peripheral surface of the outer raceway so as to correspond with the third raceway, balls of a second row interposed between the third and fourth raceways.

Obara Figures 1-2 discloses a double row bearing apparatus {(1), (3), (4), (7), (9)} for supporting a central portion of a motor (12), the bearing apparatus {(1), (3), (4), (7), (9)} including: a stepped shaft (1) including a larger diameter portion (1a) and a reduced diameter portion (1b), the first raceway (2a) formed at an appropriate position around the outer peripheral surface of the larger diameter portion (1a), the second raceway formed on an inner peripheral surface of the outer raceway {(2b), (3)} so as to correspond with the first raceway (2a), balls (4) of a first row interposed between the first (2a) and second raceways {(2b), (3)}, an inner ring fit (6) over the reduced diameter

portion (1b) of the shaft (1) and secured thereto, the third raceway (8a) formed around an outer peripheral surface of the inner ring (6), the fourth raceway (8b) formed on the inner peripheral surface of the outer raceway (7) so as to correspond with the third raceway (8a), balls (9) of a second row interposed between the third (8a) and fourth raceways (8b). See Obara Figures 1-2 and respective portions, abstract, page 2 rows 13-67, page 3 rows 1-21, of the detailed description.

Obara does not disclose outer raceways {(3), (7)} to form a sleeve or part of sleeve (14).

Binder in Figure 6 discloses the cross sectional view of the clamp, align, locate and drive mechanism of a device for mounting and orienting a workpiece on a grinding machine for abrading planar and surfaces of revolution on the workpiece. Binder shows ball bear assemblies {(228), (230)} where bearing assembly (228) consists of a double row of balls wherein the double row of balls have a common "sleeve" or raceway to roll on. See Binder Figure 6 and respective portions, abstract; page 8 rows 14-51, of the detailed description.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the radial fan blower of Heyder et al. such that it contained a double row bearing structure with a stepped shaft as in Obara where the outer raceways for the ball bearings consisted of a common "sleeve" or raceway such as in Binder so as to use a compact shaft bearing structure.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over (6,270,320 B1) to Heyder et al. in view of (5,967,671) to Obara, in view of (3,826,047) to Binder and further in view of (4,997,296) to Narita et al.

As set forth in the above rejection for claim 2, Heyder et al. in view of Obara and Binder discloses the invention substantially as claimed. Heyder et al. in view of Obara and Binder does not disclose using ceramic ball bearings in the double row bearing apparatus.

Narita et al. Figures 1-4, discloses a ceramic bearing and stepped metal shaft assembly where Narita teaches that the ceramic bearing can consist of ceramic/metal balls. See Narita et al. Figures 1-4 and respective portions; page 2 rows 13-24, of the detailed description.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the radial fan blower of Heyder et al. containing a double row bearing structure with a stepped shaft as in Obara wherein the balls of the first and second rows of the bearing apparatus are made of ceramic material so as to provide long lasting corrosion resistant ball bearings.

Allowable Subject Matter

4. **Claims 3 and 4** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

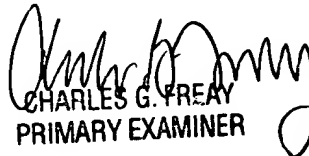
Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following selected patents and technical literature are cited to further show the state of the art in electric fan blower and related technology in general:

- ▶ US Patent No. 5,971,725 to de Simon et al. discloses a vacuum pumping device where the electronic control unit comprising a removable housing defining an inner space containing electronics is in the rear of pump.
- ▶ US Patent No. 5,099,181 to Canon discloses a DC brushless cooling fan where the motor is fixed by stays to the outer fan frame.
- ▶ US Patent No. 5,267,842 to Harmsen et al. discloses a miniaturized direct current axial fan containing a casing whose webs (stays) connect the casing to a centrally arranged motor via a flange.
- ▶ US Patent No. 4,482,302 to Grignon discloses an axial electric fan whose motor is centrally supported by casing stays.
- ▶ US Patent No. 3,561,891 to H. Saint-Amand discloses axial fans for electronic applications where the fans contain double row bearing structures and motors are centrally supported via casing stays.
- ▶ US Patent No. 3,229,897 to H. Papst discloses a ventilator where the centrally supported motor is supported via casing stays.

6. Any inquiry concerning this communication from the examiner should be directed to John F. Belena, Ph.D. whose telephone number is (703) 305-3533. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 5:00 PM. The examiner can also be reached on alternate Fridays from 9:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe, can be reached on (703) 308-0102. The fax number for this Group Art Unit 3746 is (703) 872-9302. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Art Unit 3746 receptionist whose telephone number is (703) 308-0861.

John F. Belena
GAU 3746
4/2/02


CHARLES G. FREAY
PRIMARY EXAMINER